

## PATENT ABSTRACTS OF JAPAN

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### (54) ACIDIC FERMENTED MILK SERUM PRODUCT AND ITS PRODUCTION

#### (57)Abstract:

PURPOSE: To produce an acidic fermented milk serum product having a well- mellowed and rich flavor by preventing an uncomfortable smell from generating accompanying yeast fermentation of milk serum containing a high nitrogen source.

CONSTITUTION: This acidic fermented milk serum product is produced by carrying out Lactobacillus fermentation of milk serum and/or adding an acid and a sugar until the sugar concentration reaches 20 to 35wt.% thereto, further adding a tannin thereto, adjusting pH to 2.8 to 4.5 and carrying out yeast fermentation of the resultant solution. As the tannin, tea-derived tannin or fruit-derived tannin or their combination can be used.

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**CLAIMS**


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[Claim(s)]

[Claim 1] A milk component, the dairy-products lactic acid bacteria beverage which adds docosa-hexaenoic acid (DHA) to sugar, and is obtained with lactic acid bacteria to it.

[Claim 2] A dairy-products lactic acid bacteria beverage given in claim 1 term to which the aforementioned lactic acid bacteria make *Lactobacillus* FIRUSU a subject, and are characterized by including other funguses, such as the *Lactobacillus* KAZEI bacillus, a little.

[Claim 3] The manufacture method of the dairy-products lactic acid bacteria beverage which consists of filling up a container after adding and preparing the DHA additive which the *Lactobacillus* group lactic acid bacteria are planted in the mixed liquor of a skim milk and a saccharide, it is fermented, makes yogurt, breaks this yogurt, adds molasses, considers as a dairy-products lactic acid bacteria beverage undiluted solution, and contains 0.05 - 0.07% (weight) of emulsified DHA, gluconic-acid calcium or fermented milk acid calcium, a vitamin compound, an anti-oxidant, perfume, and water a little to this undiluted solution.

[Claim 4] The manufacture method of the dairy-products lactic acid bacteria beverage characterized by providing the following. after mixing a skim milk, BUDO sugar, beet sugar, and water and carrying out the churning dissolution -- warming -- the process which sterilizes, once cools, keeps it warm at about 40 degrees C, and prepares a skim milk solution. The process which seeds a BUDO \*\*\*\* skim milk culture medium with the *Lactobacillus* group lactic acid bacteria (the *Lactobacillus* bacillus, *Lactobacillus* acidophilus, *Lactobacillus* casei) cultivated to the BUDO \*\*\*\* cow's milk culture medium, cultivates 37 degrees C for 48 hours, and is used as a bulk starter. The process which puts a BUDO sugar sugar \*\*\*\*\* solution into a fermentation tank, plants the aforementioned starter, cultivates for 37 degrees C and five - seven days, stops fermentation by pH 3.5-3.6, and makes yogurt. The process which carries out mixed churning, sterilizes with a molasses solution tank, once cools liquid sugar, beat granulated sugar, a stabilizer, and water, and is kept warm at about 40 degrees C, The process which filters and homogenizes and builds the undiluted solution of a dairy-products lactic acid bacteria beverage after supplying the aforementioned molasses solution and yogurt to the mixing tank and breaking yogurt, The process which makes the DHA additive which carried out little addition of gluconic-acid calcium or fermented milk acid calcium, vitamin E, C, an anti-oxidant, and the water, pays perfume after adding this to the undiluted solution of the aforementioned dairy-products lactic acid bacteria beverage and preparing it, and fills up a container with and which is beforehand packed to emulsified DHA.

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CLAIMS

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[Claim(s)]

[Claim 1] The acid milk-serum fermented product which adds lactic acid fermentation and/or an acid, adds milk serum so that the concentration of a saccharide may become 20 - 35 % of the weight, and adds tannin, carries out yeast fermentation of the solution adjusted to pH 2.8-4.5, and is characterized by the bird clapper.

[Claim 2] The acid milk-serum fermented product according to claim 1 which is at least one or more sorts as which the acid was chosen from the salt of a lactic acid, a succinic acid, a citric acid, a tartaric acid, a malic acid, a fumaric acid, phosphoric acids, and these acids.

[Claim 3] The acid milk-serum fermented product according to claim 1 whose tannin is tea origin tannin, fruits origin tannin, or such combination.

[Claim 4] The manufacture method of the acid milk-serum fermented product characterized by carrying out yeast fermentation of the solution which added lactic acid fermentation and/or the acid, added milk serum so that the concentration of a saccharide might become 20 - 35 % of the weight, and added tannin, and was adjusted to pH 2.8-4.5.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] this invention relates to the acid milk-serum fermented product which is obtained by carrying out yeast fermentation under low pH, high sugar concentration, and tannin existence using milk serum and which has the extremely excellent flavor, and its manufacture method.

[0002]

[Description of the Prior Art] Milk serum is a by-product produced with cheese-head production. As the usage of milk serum, the method of changing into ethanol the lactose which exists in milk serum by fermentation, the method of adding in feed, the method of using for the quality of a culture medium for the purpose of single-cell-protein production, the method of using as a confectionery raw material, etc. are mentioned. However, since those need is very small and the added value of the obtained product is not high, either, an excessive milk serum exists in the commercial scene. Therefore, the technical establishment used as the product of high added value is globally called for by processing milk serum.

[0003] The attempt which uses for a drink, a seasoning, etc. the milk-serum fermented product with which the good flavor was given by carrying out yeast fermentation of the milk serum under such a background is made. For example, in a lactic-acid-bacteria fermentation milk-serum drink and its process, there is a method of manufacturing a fermentation object with a kefir bacillus under oxygen gas forcible supply about the lactic raw material which makes milk serum a principal component. (JP,2-219538,A) However, like this method, if yeast fermentation is generally performed under aeration, it will be easy to produce an unpleasant flavor. In order to conquer this point and to obtain a good flavor, low-temperature long time fermentation is performed without carrying out aeration. However, it is not like [ which fermentation took the long time to and the acceptability of the product obtained expected ]. The technology of manufacturing the product which raised acceptability by carrying out yeast fermentation of the milk serum till present for these reasons is not completed.

[0004] On the other hand, the flavor grant technology by yeast fermentation is used in the field of food, an alcoholic beverage, a seasoning, a drink, and perfume. However, years of experience and advanced management technology are required of fermentation management for making it pure actually and obtaining a rich flavor. Moreover, when superfluous fermentation was carried out, being accompanied by generation of an unpleasant mash smell peculiar to yeast fermentation was often experienced. When fermenting in sake, wine, and a brewery, in order to obtain the fermented mash which has pure aroma and does not have an unpleasant smell, 8-15-degree C low-temperature long time fermentation is performed. However, this method is inefficient-like.

[0005] Moreover, much technology is reported until now about the examination about the generation promotion of aroma and the unpleasant-smell generation suppression accompanying yeast fermentation. For example, the method of adding amino acid, such as the precursor of an aroma component, for example, a leucine, an isoleucine, and a valine, in fermented mash (Ochi fermentation engineering, 59 volumes, 9-16 pages (1981),". :) Examination of the method of using the breeding of the yeast which suppressed strengthening or unpleasant-smell generation ability for aroma component generation ability etc. is performed.

[0006] Moreover, the method of obtaining good fermentation flavor by raising the osmotic pressure of fermented mash in the fermented milk in which yeast exists (JP,50-22102,B). How (JP,61-265081,A) to obtain the alcoholic beverage which reinforced the aroma component by inoculating yeast after adding solid-state material, such as cellulose powder, to a brewing raw material before yeast starter inoculation, making cellulose powder etc. contact, and making it ferment. The manufacture method (JP,55-119024,B) of wine of having good aroma and good flavor etc. is reported by by fermenting concentration grape fruit juice directly. However, the present condition is that these all directions methods include the trouble in various kinds of regulation systems, economical efficiency, practicality, etc. on the occasion of the operation on industry.

[0007] Moreover, after mixing a tea extract and a saccharide and carrying out a sugar content to 6 - 15% of the weight, the process (JP,4-281741,A) of the fermentation tea drink with which there is no sedimentation during preservation, and new coolness was given is reported by by fermenting by carrying out inoculation of the yeast. However, by this method, hardly including a nitrogen source, it is [ that the nitrogen source of the tea origin is only contained slightly and ], and smooth fermentation is not expectable in the fermenting tea extract. Moreover, fermentation is performed in the near state neutral [ pH after tea extraction ] at about 6.

[0008] On the other hand, when yeast fermentation was carried out using a high milk serum of the nitrogen source which is a nutrient indispensable to yeast fermentation, it became fault fermentation, and since it was easy to emanate the unpleasant smell currently called the mash smell, the MURE smell, HINE smell, etc., improvement of a yeast fermented product which used milk serum was desired.

[0009]

[Problem(s) to be Solved by the Invention] It is especially referred to as low pH at a twist, and sets under high sugar concentration. in view of such conventional technology, this invention is made in order to use a high milk serum of a nutrient effectively, and it adds lactic acid fermentation and/or an acid for milk serum -- And by carrying out yeast fermentation of the solution which added tannin so that it might become specific concentration, the generation of an unpleasant smell produced with the yeast fermentation of a high milk serum of a nitrogen source is suppressed, and it considers as the offering-acid milk-serum fermented product which has pure and rich flavor purpose.

[0010]

[Means for Solving the Problem] That is, this invention is an acid milk-serum fermented product which adds lactic acid fermentation and/or an acid, adds milk serum so that the concentration of a saccharide may become 20 - 35 % of the weight, and adds tannin, carries out yeast fermentation of the solution adjusted to pH 2.8-4.5, and is characterized by the bird clapper. Moreover, this invention is the manufacture method of the acid milk-serum fermented product characterized by carrying out yeast fermentation of the solution which added lactic acid fermentation and/or the acid, added milk serum so that the concentration of a saccharide might

become 20 - 35 % of the weight, and added tannin, and was adjusted to pH 2.8-4.5.

[0011] Hereafter, this invention is explained still in detail. The acid milk-serum fermented product of this invention is a milk-serum fermented product which comes to carry out yeast fermentation of the solution which added lactic acid fermentation and/or the acid, added milk serum so that the concentration of a saccharide might become 20 - 35 % of the weight, and added tannin, and was adjusted to pH 2.8-4.5 and which makes it pure and has a rich flavor.

[0012] The acid milk-serum fermented product of this invention can be manufactured as follows, for example. That is, a yeast starter is prepared first. A yeast starter is prepared by inoculating and cultivating seed yeast to the sterilized yeast growth culture medium. As yeast which can be used for this invention, good flavor generation is accepted in the yeast of the *Saccharomyces* (*Saccharomyces*) group and the *Kluyveromyces* (*Kluyveromyces*) group. Specifically, it is *Saccharomyces*. *SEREBISHIE* (*Saccharomyces cerevisiae*), *Saccharomyces ERIPUSOIDESU* (*Saccharomyces ellipsoideus*), *Saccharomyces A PASUTORI anus* (*Saccharomyces pastorianus*), *Kluyveromyces RAKUTESU* (*Kluyveromyces lactis*) etc. is mentioned.

[0013] The number of initiation yeast fungi at the time of a fermentation start is  $10^4$ - $10^8$ . An individual / in ml, it is effective and a sufficiently good flavor is produced also in which number of yeast fungi. In addition, when the number of initiation bacilli is high, fermentation is ended for a short time.

[0014] As quality of a culture medium used for this invention, the thing containing milk serum, a saccharide, and tannin is used.

[0015] Although it does not limit, especially as for milk serum, a cheese whey, whey permeate, cheese whey reduction liquid, whey powder, etc. can use these diluted solutions further, for example.

[0016] It is referred to as low pH by adding lactic acid fermentation and/or an acid to such milk serum. Furthermore, [ whether what carried out the amount addition of specification of the tannin is made into culture medium by setting up the environment of high sugar concentration by adding a saccharide 20 to 35% of the weight at this, and ] Or let what was prepared to low pH be culture medium by adding an acid after adding a saccharide 20 to 35% of the weight and carrying out the amount addition of specification of the tannin to milk serum at this.

[0017] What is necessary is just to perform lactic acid fermentation of the milk serum of a raw material by the usual method, when using the milk serum which carried out lactic acid fermentation, in order to prepare the above-mentioned culture medium to low pH. The lactic acid bacteria which were excellent in especially the flavor are [ that what is necessary is just the lactic acid bacteria used for food stuff industries, such as the lactic acid bacteria used for lactic acid fermentation, i.e., yogurt, and a lactic acid bacteria beverage, ] desirable. It is made to be set to pH 2.8-4.5 at the time of a lactic-acid-fermentation end, and a lactic-acid-bacteria utilization nature saccharide may be added depending on the case.

[0018] Moreover, at least one or more sorts chosen from the salt of a lactic acid, a succinic acid, a citric acid, a tartaric acid, a malic acid, a fumaric acid, phosphoric acids, and these acids can be used for the acids added in order to prepare culture medium to low pH. The density range of the acid to be used is preferably taken as 0.5 - 2.5% of range 4% or less.

[0019] Although pH of the culture medium at the time of fermentation generates the flavor which was excellent in 2.8-4.5, its range of 3.0-3.5 is good for obtaining a still more desirable flavor. If it ferments exceeding pH 4.5, the amount of generation of an unpleasant smell increases and a desirable flavor cannot be obtained. Moreover, less than by pH 2.8, in order to hardly increase yeast, a flavor manifestation becomes very weak.

[0020] Cane sugar, grape sugar, fruit sugar, a lactose, a maltose, a galactose, a xylose, liquid sugar, honey, etc. can also be used for the saccharide added to culture medium. Especially cane sugar, grape sugar, and fruit sugar are desirable. You may use these saccharides in independence or two or more sorts of combination.

[0021] The saccharide concentration to add has 20 - 35 desirable % of the weight. If saccharide concentration ferments at less than 20 % of the weight, the amount of generation of an unpleasant smell will increase. Moreover, if saccharide concentration exceeds 35 % of the weight, a flavor manifestation will become very weak in order to hardly increase yeast. Furthermore, 25 - 30% of the weight of the range is good for obtaining a desirable flavor.

[0022] Although especially the tannin used for this invention is not limited, it is the thing of tea origin tannin, fruits origin tannin, or such combination, for example, its thing of the origin is desirable for food, such as green tea, tea, a grape, and an apple. About the character of tannin, it is not asked that they are solution or powder. Although the addition of tannin changes with kinds of tannin to be used and determination is not made uniformly, you may be 0.01 - 0.4 % of the weight preferably 1 or less % of the weight as a tannin (polyphenol compound) solid content into culture medium from solubility, acceptability, the preservation stability in the inside of fermented mash, the fermentation prevention nature of yeast, etc. When a tannin addition is about 0.1 % of the weight, multiplication of yeast may be promoted a little. When a tannin addition exceeds 1 % of the weight, fermentation prevention of yeast is accepted, and flavor peculiar to tannin becomes strong too much, and acceptability becomes bad and stops however, being suitable for a general food grade.

[0023] Sterilization processing of the culture medium which prepared the quality of a culture medium in advance of the yeast fermentation start is carried out. About these conditions, it is based on the filtration sterilization usually used, heat sterilization, the UHT method, or the HTST method. A fermentation start is carried out by inoculating the above-mentioned yeast starter to the culture medium which performed this sterilization processing. The decision criterion of a fermentation end can use the amount of ethanol generation. Namely, in carrying out the goods design of the straight drink using the fermented mash obtained by this fermentation method, it makes into a fermentation end decision criterion the range in which ethanol concentration does not exceed 1%, and when carrying out a goods design, ethanol concentration should just set up an alcoholic beverage as a fermentation end decision criterion with 1% or more of concentration to wish.

[0024] Yeast fermentation in this invention can be performed without needing strict management like the yeast fermentation usually performed. In the case of 30 % of the weight of cane-sugar additions, cultivation temperature and cultivation time can attain the purpose in cultivation temperature [ of 25-30 degrees C ], and cultivation time 12 - 72 hours. For the improvement in shelf life after a fermentation end, it is good to perform disinfection or sterilization processing, and it performs filtration sterilization or heat sterilization. In heat sterilization, the purpose can be attained by 70-90-degree-C \*\*\*\*\*.

[0025] In order to use a high milk serum of a nitrogen source by performing the above yeast fermentation, while suppressing remarkably the unpleasant smell generated by superfluous fermentation, the acid milk-serum fermented product which made good aroma generate preferentially and quickly can be manufactured.

[0026] Since the acid milk-serum fermented product which makes it pure and has a rich flavor as a practical use side of this invention is obtained, by remaining as it is, the alcoholic beverage, or potable quality water, this can be diluted with a favorite rate and can be drunk. Moreover, it can

also use as what gives flavor desirable as a seasoning.

[0027]

[Function] this invention can perform smooth fermentation by using milk serum for the nitrogen source which is a nutrient indispensable to yeast fermentation. On the other hand, by the thing of only the nitrogen source of the tea origin being contained slightly, smooth fermentation is not expectable, hardly including nitrogen sources, such as the conventional tea extract.

[0028] Although it will be easy to emanate the unpleasant smell which becomes fault fermentation and is called the mash smell, the MURE smell, HINE smell, etc. if yeast fermentation of the milk serum is generally carried out, in this invention, it is referred to as low pH (pH 2.8-4.5), and it adds so that it may become specific concentration about tannin under high sugar concentration (20 - 35 % of the weight), and bottom yeast fermentation of ordinary temperature is performed. Therefore, the acid milk-serum fermented product which has the flavor which produced the effect which suppresses generation of an unpleasant smell, made it pure, and is extremely excellent is obtained, making smooth fermentation perform using milk serum by decomposing the fruits Mr. aroma component of the ester system generated by yeast fermentation, and the polyphenol component of enzyme proteins, such as esterase which generates the causative agent of an unpleasant smell, and tannin joining together, and checking enzyme activity.

[0029]

[Example] Although an example explains this invention still in detail below, this invention is not limited to these.

[0030] It prepared by 61.14kg of potable quality water so that it might become example 1 whey powder (Meiji Milk Product Co., Ltd. make) 1kg, glucose 0.5kg, 30kg of cane sugars, and 0.1kg (tradename : Polyphenon G, 33% of tannin contents, pH (1% solution)5.7, the product made from Mitsui Agriculture and forestry) of green tea extraction powder, and it was referred to as pH 3.3 using 2.22kg of lactic acids, and 5.04kg of 50% sodium lactates 90%. 100kg of culture medium was prepared and 90-degree-C \*\*\*\*\* were performed. Yeast starter (paddle [ Today for wine / : ] No. 3 Brewing Society of Japan) 3kg which carried out preculture beforehand after cooling was inoculated to the room temperature, and stationary culture was carried out for four days at 25 degrees C. At this time, accumulation of a good flavor was checked in fermented mash in connection with the passage of time.

[0031] It was pure, and even result [ which the flavor of the fermented mash obtained at this time depends on 15 organic-functions evaluation panels ], it was very good. Green tea extraction powder additive-free fermented mash was simultaneously prepared as a comparison sample. and organic-functions evaluation was performed. An evaluation result is shown in Table 1. Moreover, when the fermented mash of green tea extraction powder addition was diluted with potable quality water 4 times, it became the soft drink which has a fresh flavor.

[0032]

[Table 1]

表 1 香味に及ぼすタンニンの影響

	官能評価結果
タンニン無添加	1. 5
タンニン添加	4. 6



Error criterion: (Note) 0-5 (score 0 is made as a defect and score 5 is made superior)

[0033] Example 2 whey powder (Meiji Milk Product Co., Ltd. make) 1kg and 69kg of 4 times many tea [ as this ] extracts were mixed. In addition, 2.8kg (tradename : Ceylon blend NOR- 1, the product made from Mitsui Agriculture and forestry) of tea leaves was added to 100kg of potable quality water, and 85 degrees C of methods of preparation of a 4 times many tea [ as this ] extract extracted them for 20 minutes. To 70kg of mixed liquor, it added so that it might become 0.5kg of invert sugars, and 28kg of cane sugars. Furthermore, 1kg of citric acids and 0.5kg of sodium citrates were added, and it prepared so that it might be set to pH 3.5. To 100kg of this solution, 90-degree-C \*\*\*\*\* were performed and yeast starter (Saccharomyces cerevisiae IAM-4206) 3kg was added after cooling to the room temperature.

[0034] Stationary culture of the fermentation was carried out for three days at 25 degrees C. At this time, accumulation of the flavor to the inside of fermented mash progressed with multiplication of yeast. The flavor of the obtained fermented mash was pure and sensuously good. The evaluation result performed like the example 1 is shown in Table 2.

[0035] When this fermented mash was diluted 5 times and having been considered as the bevel use, it became what has a flavor peculiar as a milk-serum fermentation tea drink. Furthermore, after removing an insoluble suspended solid by the centrifuge method, it became the soft drink which was excellent in preservation stability by performing heat sterilization for 75 degrees C and 10 minutes.

[0036] In the example of comparison 1 whey powder (Meiji Milk Product Co., Ltd. make) additive-free case, 70kg of 4 times many tea [ as this ] extracts was used. In addition, 2.8kg (tradename : Ceylon blend NOR- 1, the product made from Mitsui Agriculture and forestry) of tea leaves was added to 100kg of potable quality water, and 85 degrees C of methods of preparation of a 4 times many tea [ as this ] extract extracted them for 20 minutes. To 70kg of 4 times many tea [ as this ] extracts, it added so that it might become 0.5kg of invert sugars, and 28kg of cane sugars. Furthermore, 1kg of citric acids and 0.5kg of sodium citrates were added, and it prepared so that it might be set to pH 3.5. To 100kg of this solution, 90-degree-C \*\*\*\*\* were performed and yeast starter (Saccharomyces SEREBISHIE IAM-4206) 3kg was inoculated after cooling to the room temperature. Stationary culture of the fermentation was carried out for three days at 25 degrees C.

[0037] The number of yeast fungi in the fermented mash at this time was set to about 1/100 level at the time of whey powder addition, and generation of an aroma component is very feeble and became a score also with low organic-functions evaluation. An evaluation result is shown in Table 2.

[0038]

[Table 2]

表 2 香味に及ぼすホエイパウダーの影響

	官能評価結果
ホエイ無添加 (比較例 1)	1. 8
ホエイ添加 (実施例 2)	4. 5

Error criterion: (Note) 0-5 (score 0 is made as a defect and score 5 is made superior)

[0039] It prepared by 650g of potable quality water so that it might become influence whey powder (Meiji Milk Product Co., Ltd. make) 10g of the initiation pH of example 3 culture medium, glucose 5g, 300g of cane sugars, and 1g (tradename : Polyphenon G, the product made from Mitsui Agriculture and forestry) of green tea extraction powder, and five kinds of samples for every pH0.5 stage were prepared to pH 3.0-5.0 using 22.2g of lactic acids, and 50.4g of 50% sodium lactates 90%. It \*\*\*\*\* (ed) [ 90 degree-C ] 1kg of each culture medium according to pH at a time. Yeast starter (today for wine paddle No. 3) 30g which carried out preculture beforehand after cooling was inoculated to the room temperature, and stationary culture was carried out for five days at 25 degrees C. Organic-functions evaluation of aging of the aroma generation at this time was performed. The result is shown in Table 3.

[0040]

[Table 3]

表 3

香気生成の官能評価				
初発 pH	培養日数			
	1	2	3	4
3. 0	—	±	+	++
3. 5	—	+	++	++
4. 0	—	±	+	+
4. 5	±	±	+	+
5. 0 *	—	±	±	±

(notes 1) error-criterion: -- (-)-aroma-less (\*\*) aroma and those with \*\* (+) -- it is fragrant (++) and aroma good (notes 2) \* shows the example of comparison

[0041] It prepared by potable quality water 561.4-911.4g so that it might become influence whey

powder (Meiji Milk Product Co., Ltd. make) 10g of example 4 culture-medium sugar concentration, glucose 5g, cane sugars 0-350g (cane-sugar weight % concentration : 0, 7, 14, 20, 28, 35), and 1g (tradename : Polyphenon G, the product made from Mitsui Agriculture and forestry) of green tea extraction powder, and it was referred to as pH 3.3 using 22.2g of lactic acids, and 50.4g of 50% sodium lactates 90%. It \*\*\*\*\* (ed) [ 90 degree-C ] 1kg of each culture medium according to cane-sugar concentration at a time. Yeast starter (today for wine paddle No. 3) 30g which carried out preculture beforehand after cooling was inoculated to the room temperature, and stationary culture was carried out for five days at 25 degrees C. Organic-functions evaluation of the aging of the aroma generation at this time was carried out. The result is shown in Table 4.

[0042]

[Table 4]

表 4

香氣生成の官能評価					
ショ糖濃度 (重量%)	培養日数				
	1	2	3	4	5
0 *	—	—	—	±	±
7 *	—	—	—	±	±
14 *	—	—	±	±	±
20	—	±	+	+	++
28	—	±	+	++	++
35	—	—	±	+	+

(notes 1) error-criterion: -- (-)-aroma-less (\*\*) aroma and those with \*\* (+) -- it is fragrant (++) and aroma good (notes 2) \* shows the example of comparison

[0043] Example 5 whey powder (Meiji Milk Product Co., Ltd. make) 1kg, 2kg of cane sugars, and 0.1kg (yeast auto RIZATTO and Mitsuhiro Company) of yeast-extract powder were dissolved in 94kg of potable quality water, it cooled to the room temperature after 90-degree-C \*\*\*\*\*, and 3kg (Lactobacillus acid philus JCM 1132) of lactic starters was inoculated. pH of the culture medium when cultivating this 37 degrees C for 24 hours was set to 3.6.

[0044] After 80-degree-C \*\*\*\*\* (ing) 0.4kg (tradename : Polyphenon RB, the product made from Mitsui Agriculture and forestry) of tea extraction powder, 0.5kg of invert sugars, and 28kg of cane sugars after the addition dissolution to 68kg of obtained whey lactic-acid-fermentation liquid and cooling to a room temperature to it, yeast starter (paddle [ Today for wine / : ] No. 3 Brewing Society of Japan) 3kg was inoculated, and stationary culture was carried out for three days at 25 degrees C. At this time, accumulation of a flavor progressed into fermented mash with multiplication of yeast. The flavor of the obtained fermented mash was pure and sensuously good. When this fermented mash was diluted with potable quality water 5 times and having been considered as the bevel use, it became what has a flavor peculiar as a milk-serum fermentation tea drink.

[0045]

[Effect of the Invention] As explained above, according to this invention, generation of an unpleasant smell peculiar to the fault fermentation of the yeast by using milk serum is suppressed, and the acid milk-serum fermented product which has a pure and rich flavor is obtained. Moreover, it can manufacture on a short time and a stable target under ordinary temperature fermentation conditions. Therefore, this invention is very useful new technology applicable to industrial production of various food, such as a drink, an alcoholic beverage, and a seasoning.

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[Translation done.]

L5 ANSWER 3 OF 5 CAPLUS COPYRIGHT 1998 ACS  
AB Defatted **milk** sugars are treated with  
**Lactobacillus** acidophilus and fermented to give a yogurt  
which is then combined with molasses. This beverage is mixed with a  
docosahexaenoic acid additive consisting of 0.05-0.07 wt. %  
docosahexaenoic acid, Ca gluconate or fermented Ca lactate,  
vitamins, antioxidants (**tea** ext.), a flavor and water to  
give a health drink for enhancing brain development.  
AN 1996:123894 CAPLUS  
DN 124:174284  
TI **Milk** health beverages containing **Lactobacillus**  
and docosahexaenoic acid  
IN Sugimura, Goichi  
PA Taiyodo Yakuhin Kk, Japan  
SO Jpn. Kokai Tokkyo Koho, 3 pp.  
CODEN: JKXXAF  
PI JP 07327593 A2 951219 Heisei  
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FILE 'CAPLUS, BIOSIS, AGRICOLA, USPATFULL, WPIDS' ENTERED AT 11:57:42 ON  
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L1 286066 S ANTIOXIDAN? OR ANTI OXIDAN?  
L2 329995 S FERMENT?  
L3 82106 S TEA OR TEAS  
L4 36 S L1 (20A) L2 (20A) L3  
L5 27 DUP REM L4 (9 DUPLICATES REMOVED)

=>

d his

(FILE 'HOME' ENTERED AT 13:07:16 ON 19 MAR 1998)

FILE 'CAPLUS, BIOSIS, MEDLINE, NAPRALERT, DRUGU, WPIDS' ENTERED AT  
13:07:35 ON 19 MAR 1998

L1 29739 S LACTOBACILLUS  
L2 36086 S TEA  
L3 220854 S MILK?  
L4 1 S L1 (20A) L2 (20A) L3  
L5 5 S L1 AND L2 AND L3  
L6 3962 S LACTOBACILLUS PLANTARUM  
L7 15 S L2 AND L6  
L8 10 DUP REM L7 (5 DUPLICATES REMOVED)  
L9 5719 S 7439-96-5D

=> s l9 and l1

L10 12 L9 AND L1

=> s l7 not l10

L11 14 L7 NOT L10

=> d s l10 not l7

L7 IS NOT VALID HERE

For an explanation, enter "HELP DISPLAY".

=> s l10 not l7

L12 11 L10 NOT L7

=> dup rem l10

PROCESSING COMPLETED FOR L10

L13 12 DUP REM L10 (0 DUPLICATES REMOVED)

=> d l13 ab bib 1-